



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)

COLAIANNA et al.)

Serial No. 10/619,190)

Filed: JULY 15, 2003)

For: "TFE COPOLYMERS"

Art Unit: 1713

Primary Examiner:

HENRY S. HU

DECLARATION OF ING. GIULIO BRINATI

PURSUANT TO 37 C.F.R. § 1.132

Hon. Commissioner of Patents and Trademarks

Washington, D.C. 20231

Sir:

I, Giulio Brinati, do hereby declare that:

1. I am one of the inventors of the invention claimed in the above-identified application Serial No. 10/619,190.
2. I am a citizen of Italy, residing in MILAN, via Oglio, 1 (Italy).
3. I got the degree in Chemical Engineering at the University of Politecnico of Milan in 1982.
4. I have been working in Ausimont's Research & Development Center (now SOLVAY SOLEXIS) since 1984 in the field of fluorinated polymers chemistry.
5. I have read and am familiar with the text of the present Application and with the cited prior art, in particular with the document Pucciariello (Journal of Applied Polymer Science, Vol.64, 407-409 (1997)).
6. The following experiments were run under my supervision, direction and control, in order to show that the technical

problem of the present invention (i.e. fluorinated polymers usable for LAN cables preparation having improved extrusion rate combined with improved electric insulation - see application, page 2 lines 4-7) can be solved only when the MFI of the claimed TFE-FMVE copolymers is between 8 and 50 g/10 min, as it is indicated in claim 1.

COMPARATIVE EXAMPLE A

Preparation of a TFE/FMVE copolymer in the molar ratio 96:4, MFI lower than 8, and subsequent extrusion in wire line.

The polymerization described in Example 1 at page 11 of the application is repeated except for the amount of ethane acting as chain transfer agent: 0.30 absolute bar (3.0×10^4 Pa).

The other parameters were the same as those of Example 1 of the application, in particular:

- demineralized water: 13.9 litres;
- microemulsion : 128 g ;
- stirring : 400 rpm;
- temperature : 75°C;
- FMVE in autoclave : 3.16 absolute bar (3.16×10^4 Pa);
- monomeric mixture : TFE/FMVE in the molar ratio 24:1 ;
- autoclave pressure : 21 absolute bar (2.1×10^4 Pa);
- flow rate of KPS 0.0103 M solution: 170 ml/h.

When the total amount of the monomeric mixture feeding the reactor is 8800 g the reaction is stopped.

The reactor is cooled, the latex is discharged, coagulated with nitric acid, washed with water and then dried in oven at 220°C.

Table A reports molar composition (evaluated by IR analysis), Melt temperature and MFI of the obtained polymer.

The polymer was then extruded on a AWG 24 copper cable having a diameter of 0.51 mm, according to the same method as that of Example 1 at pages 12-13 of the application.

Table A also reports wire speed and spark failure/14 km.

COMPARATIVE EXAMPLE B

Preparation of a TFE/FMVE copolymer in the molar ratio 96:4, MFI higher than 50, and subsequent extrusion in wire line.

The polymerization described in the above COMPARATIVE EXAMPLE A is repeated except for the amount of ethane acting as chain transfer agent: 0.80 absolute bar (8.0×10^4 Pa).

Table A reports molar composition (evaluated by IR analysis), Melt temperature and MFI of the obtained polymer.

The polymer was then extruded on a AWG 24 copper cable having a diameter of 0.51 mm, under the same conditions as the above COMPARATIVE EXAMPLE A.

Table A also reports wire speed and spark failure/14 km.

Table A.

	COMPARATIVE EXAMPLE A	COMPARATIVE EXAMPLE B
Composition TFE/FMVE % by moles	96/4	96/4
Melt temperature (°C)	284	289
MFI (g/10 min)	6	55
<u>EXTRUSION</u>		
Wire speed ^(*) (m/min)	300	900
Sparks failure/14 km	0	5

(*) The screw speed rate in the extrusion of cables is increased up to the maximum wire speed without cone rupture and oscillations.

7. The results of the above Table A clearly show that a MFI lower than 8 run at lower speed rate (300 m/min) in comparison with the examples 1, 3, 4 and 7 of the application (900 m/min). Moreover, when MFI is higher than 50 sparks failure become very frequent.

Therefore, MFI is clearly an essential parameter for fluorinated polymers usable for LAN cables preparation having improved extrusion rate combined with improved electric insulation.

8. I also declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willfull false statements may jeopardize the validity of the application or any patent or registration issuing thereon.

Giulio Brinati (Giulio Brinati); 5/9/2005 (date)